

We Claim:

1. An ionic compound comprising a cation which is a complex of a neutral organic ligand with a metal ion and an anion which is a conjugate anion of the metal ion.
2. An ionic compound according to claim 1 which is a liquid below 100°C.
3. An ionic compound according to claim 2 which is a liquid at room temperature.
4. An ionic compound according to claim 1 which is conductive in the absence of a solvent.
5. An ionic liquid according to claim 1 which is hydrophobic.
6. An ionic compound according to claim 1 wherein said neutral organic ligand is a crown ether.
7. An ionic liquid according to claim 1 wherein the neutral organic ligand is at least one alkyl amine.
8. An ionic compound according to claim 1 wherein said conjugate anion is bis(trifluoromethane)sulfonimide.
9. A method for forming an ionic liquid comprising mixing a neutral organic ligand with the salt of a metal cation and its conjugate anion at room temperature.
10. A method according to claim 9 wherein said neutral organic ligand is a crown ether.

11. A method according to claim 10 wherein the metal cation is selected from the group consisting of sodium potassium, lithium and calcium.
12. A method according to claim 9 wherein said neutral organic ligand is an alkylamine.
13. A method according to claim 12 wherein said metal cation is selected from the group consisting of silver, zinc, copper, cadmium, nickel, mercury and iron.
14. A method according to claim 9 wherein said conjugate anion is bis(trifluoromethane)sulfonimide.
15. A method according to claim 9 which is performed at room temperature.